

I. General Information

CAS Number: C.I. Pigment Violet 19, (CAS No. 1047-16-1)

Name: Quino(2,3-b)acridine-7,14-dione,5,12-dihydro

CAS Number: C.I. Pigment Violet 122, (CAS No. 980-26-7)

Name: Quino(2,3-b)acridine-7,14-dione,5,12-dihydro-2,9-dimethyl

CAS Number: (CAS NO. 5862-38-4)

Name: Dihydro Quinacridone

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II. Physical-Chemical Data**A1. Melting Point****Test Substance**

Test substance: Quino(2,3-b)acridine-7,14-dione,5,12-dihydro

Remarks:

Method

Method: Measured

Remarks:

Results

Melting point value: >400 °C

Remarks:

References**Other**

Anliker R. and Moser P. , The Limits of Bioaccumulation of Organic Pigments in Fish: Their Relation to the Partition Coefficient and the Solubility in Water and Octanol, Ecotox. And Envir. Saf. 13, Pp. 43-52 (1987) Data is consistent with melting points for the class of pigments and other available measurements,

A2. Melting Point

Test Substance

Test substance: Quino(2,3-b)acridine-7,14-dione,5,12-dihydro-2,9-dimethyl

Remarks:

Method

Method: Adapted Joback Method

Remarks:

Results

Melting point value: 349 °C

Remarks:

References

EPIWIN v 3.10, Syracuse Research Corporation, Syracuse, New York

Other

Data is consistent with melting points for the class of pigments and other available measurements.

A2. Melting Point

Test Substance

Test substance: Dihydro Quinacridone

Remarks:

Method

Method: Esitimate, Adapted Joback method

Remarks:

Results

Melting point value: 349.84 °C

Remarks:

References

EPIWIN v 3.10, Syracuse Research Corporation, Syracuse, New York

Other

Data is consistent with melting points for the class of pigments and other available measurements.

B. Boiling Point
Test Substance
Test substance: SOLID N/A
Remarks:

Method
Method:
Remarks:

Results
Boiling point value:
Remarks:

References

Other

C1. Vapor Pressure
Test Substance
Test substance: Quino(2,3-b)acridine-7,14-dione,5,12-dihydro
Remarks:

Method
Method: Estimation
Remarks: Modified Grain method

Results
Vapor pressure value: 1.13 E-010 mmHg
Temperature:
Remarks:

References
MPBPWIN v1.40 in EPIWIN v 3.10, Syracuse Research Corporation,
Syracuse, New York

Other

C2. Vapor Pressure
Test Substance
Quino(2,3-b)acridine-7,14-dione,5,12-dihydro-2,9-dimethyl
Remarks:

Results
Vapor pressure value: 2.14 E-011 mm Hg
Temperature:

Remarks:
Method

Method:
Remark:

Estimation
Modified Grain method

References
York

MPBPWIN v 1.40 in EPIWIN v 3.10, Syracuse Research Corporation, Syracuse, New York

Other

D. Partition Coefficient**Test Substance**

Test substance: Quino(2,3-b)acridine-7,14-dione,5,12-dihydro

Remarks:

Method

Method: Octanol Solubility Determination
Remarks: GLP \1996\ Guideline 40 CFR 796

Results

Solubility: .808 mg/L at 20 °C
Remarks:

References

Corning Hazleton, CHW 6623-105, 1996, Log Kow partition coefficient cannot be determined for this compound, solubility in water and octanol are too low to produce a meaningful value.

Other**E. Water Solubility****Test Substance**

Test substance: Quino(2,3-b)acridine-7,14-dione,5,12-dihydro

Remarks:

Method

Method: Estimated
Remarks:

Results

Value: <.808 mg/L
Temperature: 20 °C
Description:
Remarks: Extremely Low Solubility

References

Corning Hazleton, CHW 6623-105, 1996, Log Kow partition coefficient cannot be determined for this compound, solubility in water and octanol are too low to produce a meaningful value.

Other

III. Environmental Fate Endpoints

A. Photodegradation

Test Substance

Test substance: Quino(2,3-b)acridine-7,14-dione,5,12-dihydro

Remarks:

Method

Method: Estimate

Test type: Water\sunlight

Remarks:

Results

Temperature:

Degradation Rate

: Half-life .642 hours

Ozone reaction:

Remarks:

Conclusions

[Estimate only applies to minute soluble fraction]

References

AOPWIN v 1.91, Syracuse Research Corporation, Syracuse, New York

Other

A2. Photodegradation

Test substance: Quino(2,3-b)acridine-7,14-dione,5,12-dihydro-2,9-dimethyl

Remarks:

Method

Method: Estimate
Test type: Water\sunlight
Remarks:

Results

Temperature:
Hydroxyl radicals reaction
OH Rate constant:
Half-life .641 hours
Ozone reaction:
Remarks:

Conclusions [Estimate only applies to minute soluble fraction]

References AOPWIN v 1.91, Syracuse Research Corporation, Syracuse, New York

Other

B. Stability in Water**Test Substance**

Test substance: Quino(2,3-b)acridine-7,14-dione,5,12-dihydro

Remarks:

Method

Method:

Test type:

GLP:

Remarks:

Results

Half-life:

Percent hydrolyzed in
5 days (120 hs)

at 50 °C :

Remarks:

Conclusions**Data Quality**

Remarks:

References**Other**

Due to extremely low solubility, hydrolysis in water for quinacridone pigments cannot be estimated or measured accurately at this time. See HYDROWIN v 1.67 Syracuse Research Corporation, Syracuse, New York

C. Biodegradation

Test Substance

Test substance: Quino(2,3-b)acridine-7,14-dione,5,12-dihydro

Remarks:

Method

Method: Estimation

Test type:

GLP:

Year:

Remarks:

Results

Results: noreadily biodegradable

Remarks:

Conclusions

Results apply to all three quinacridone pigments.

Data Quality

Remarks:

References

EPI Suite HYDROWIN v 4.02 Syracuse Research Corporation, Syracuse, New York, Anliker R., and Clarke, E.A. Ecology and Toxicology of Synthetic Organic Pigments, Chemosphere, Vol. 9, pp. 595-609 (1980)

Other

D. Transport between Environmental Compartments (Fugacity)

Test Substance

Test substance: Quino(2,3-b)acridine-7,14-dione,5,12-dihydro
Remarks:

Method

Test type: Estimation
Model used: Level III Fugacity Model; EPIWIN:EQC from Syracuse Research Corporation
Remarks:

Results

Model data and results:	Distribution (%)
Air	5.15 E-007
Water	37.1
Soil	62.8
Sediment	.0897

Remarks:

Since no experimental values were available the physical chemical values utilized in this model were default parameters from within EPIWIN.

Conclusions

References

Meylan, W. (1993). User's Guide for the Estimation Programs Interface (EPI), Version 3.10, Syracuse Research Corporation, Syracuse, New York 13210. The Level III model incorporated into EPIWIN is a Syracuse Research Corporation adaptation of the methodology described by Mackay *et al.* 1996; *Environ. Toxicol. Chem.* **15**(9), 1618-1626 and 1627-1637.

Other

D2. Transport between Environmental Compartments (Fugacity) Test Substance

Test substance:	Distribution (%)	Air	Water	Soil
Remarks:	84.8	15	1.56 E-006	Sediment

Method Test type:

Model used:

Remarks:

Results

Model data and results:
Estimated distribution and media concentration (levels II/III):
Remarks:

Quino(2,3-b)acridine-7,14-dione,5,12-dihydro-2,9 dimethyl Estimation Level III Fugacity Model; EPIWIN: EQC from Syracuse Research Corporation
122Since no experimental values were available the physical chemical values utilized in this model were default parameters from within EPIWIN.

Meylan, W. (1993). User's Guide for the Estimation Programs Interface (EPI), Version 3.10, Syracuse Research Corporation, Syracuse, New York 13210. The Level III model incorporated into EPIWIN is a Syracuse Research Corporation adaptation of the methodology described by Mackay *et al.* 1996; *Environ. Toxicol. Chem.* **15**(9), 1618-1626 and 1627-1637.

Conclusions

References

Other

D3. Transport between Environmental Compartments (Fugacity)
 Test Substance Test
 substance: Remarks:

Quino(2,3-b)acridine-7,14-dione,5, 6, 12, 13-tetrahydroEstimationLevel III
 Fugacity Model; EPIWIN:EQC from Syracuse Research Corporation
 Distribution (%) Air 1.04 E-009
 Water 10.8 Soil
 86.1 Sediment

Method Test type:
 Model used:
 Remarks:

3.08Since no experimental values were available the physical chemical
 values utilized in this model were default parameters from within
 EPIWIN.Meylan, W. (1993). User's Guide for the Estimation Programs
 Interface (EPI), Version 3.10, Syracuse Research Corporation, Syracuse, New
 York 13210. The Level III model incorporated into EPIWIN is a Syracuse
 Research Corporation adaptation of the methodology described by Mackay *et*
al. 1996; *Environ. Toxicol. Chem.* **15(9)**, 1618-1626 and 1627-1637.

Results Model data and results:
 Estimated distribution
 and media concentration
 (levels II/III):
 Remarks:

Conclusions

References

Other

IV. Ecotoxicity

A. Acute Toxicity to Fish

Test Substance

Quino(2,3-b)acridine-7,14-dione,5,12-dihydro

Test substance:

Remarks:

Method

Method:

Estimation

Test type:

GLP:

Year:

Species/strain:

Fish

Analytical monitoring:

Exposure period:

Remarks:

Results

Nominal concentration:

Measured concentration:

Endpoint value:

LC50 96 Hours 885 mg/L , 14 Day LC 50 1454 mg/L

Biological observations:

Statistical methods:

Remarks:

Conclusions

Due to its insolubility, the material is not anticipated to be toxic in the water at saturation.

Data Quality

Reliability:

Remarks:

References

EPI Suite ECOSAR v .099 Syracuse Research Corporation, Syracuse, New York, Anliker R. and Moser P. , The Limits of Bioaccumulation of Organic

Other

Pigments in Fish: Their Relation to the Partition Coefficient and the Solubility in Water and Octanol, Ecotox. And Envir. Saf. 13, Pp. 43-52 (1987)

A2. Acute Toxicity to Fish

Test Substance

Test substance: Quino(2,3-b)acridine-7,14-dione,5,12-dihydro-2,9-dimethyl

Remarks:

Method

Estimation

Method:

Test type:

GLP:

Year:

Fish

Species/strain:

Analytical monitoring:

Exposure period:

Remarks:

Results

Nominal concentration:

Measured concentration:

LC50 96 Hours 91 mg/L , 14 Day LC 50, 178.04 mg/L

Endpoint value:

Biological observations:

Statistical methods:

Remarks:

Conclusions

Due to its insolubility, the material is not anticipated to be toxic in the water at saturation.

Data Quality

Reliability:

Remarks:

References

EPI Suite ECOSAR v .099 Syracuse Research Corporation, Syracuse, New York, Anliker R. and Moser P. , The Limits of Bioaccumulation of Organic Pigments in Fish: Their Relation to the Partition Coefficient and the Solubility in Water and Octanol, Ecotox. And Envir. Saf. 13, Pp. 43-52 (1987)

Other

B. Acute Toxicity to
Test substance:

Remarks:

Quino(2,3-b)acridine-7,14-dione,5,12-dihydro-2,9-dimethyl

Method

Method:

Test type:

GLP:

Year:

Species/strain:

OECD 211 Daphnia Magna reproduction

Analytical monitoring:

Exposure period:

Yes

Remarks:

Daphnia Magna

Results

Nominal concentration:

Measured concentration:

Endpoint value:

Reproduction

Biological observations:

Statistical methods:

No differences in the onset of brood production observed in the concentration group in comparison to the control. The reproduction rate in the concentration group showed no statistically significant changes in comparison to the control.

Remarks:

Conclusions

Data Quality

Reliability:

Remarks:

References

Reliable without restriction

Other

Company sponsored data

C. Toxicity to Aquatic Plants

Test Substance

Test substance: Quino(2,3-b)acridine-7,14-dione,5,12-dihydro

Remarks:

Method

Method: Estimation

Test type:

GLP:

Year:

Species/strain: Algae

Endpoint basis:

Exposure period:

Analytical procedures:

Remarks:

Results

Nominal concentration:

Measured

concentration:

Endpoint value:

NOEC:

Biological

observations:

Was control response

satisfactory:

Statistical Methods:

Remarks:

The conduction of an algae test with C.I. Pigment Violet 19, Red 122 or dyhydroquinacridone is problematic as the substance leads to a strong coloring of the test solution and therefore to a reduction of light intensity. Therefore, the assessment is made on the basis of computer model estimation.

96 hour EC-50, 548.6

Conclusions

Data Quality

Reliability:

Remarks:

References

reliable with restriction

Other

EPI Suite ECOSAR v .099 Syracuse Research Corporation, Syracuse, New York,

V. Toxicological Data

A. Acute Toxicity

Test Substance

Test substance: Quino(2,3-b)acridine-7,14-dione,5,12-dihydro
Purity was unknown

Remarks:

Method

Method: Acute lethality; Other
Test type: LD₅₀ estimate
GLP: No (Pre-GLP)
Year: 1957
Species/strain: Male albino Rats
Route of exposure: Oral gavage
Dose levels: 1000, 3400, 5000, 7500 mg/kg
Remarks:

Results

Value: LD₅₀ = >7,500 mg/kg.
Deaths at each dose:
Remarks: All rats survived, Clinically, the rats showed only mild discomfort at the higher levels. The material appeared to be excreted in the feces.

Conclusions

Material would be considered as not toxic.

Data Quality

Reliability: Reliable with restrictions
Remarks: The study was conducted quite some time ago and hence many study details are missing from the report and not available. However, basic data are given and results are consistent with other data for pigments of this type.

References

Haskwll Laboratory, Medical Research project, No., MR-166, See also, Mone J.G. 1968, Federation Series on Coating Technology, Unit 9 Organic Pigments, Federation of Societies for Paint Technology, Philadelphia, PA 19107.

Other

Acute toxicity

Test substance: Quino(2,3-b)acridine-7,14-dione,5,12-dihydro-2,9-dimethyl

Remarks: Purity was unknown

Method

Method: Acute lethality; Other
Test type: LD₅₀ estimate
GLP: No (Pre-GLP)
Year: 1968
Species/strain: Rat and mouse
Route of exposure: Oral gavage
Dose levels: Unknown
Remarks:

Results

Value: LD₅₀ = >5,000 mg/kg.
Deaths at each dose:
Remarks:

Conclusions

Material would be considered as not toxic.

Data Quality

Reliability: Reliable with restrictions
Remarks:

References

Mone J.G. 1968, Federation Series on Coating Technology, Unit 9 Organic Pigments, Federation of Societies for Paint Technology, Philadelphia, PA 19107.

Other

A. Acute Toxicity

Test Substance

Test substance: Quino(2,3-b)acridine-7,14-dione,5,12-dihydro
Purity was unknown

Remarks:

Method

Method: Acute lethality; Other
Test type: LC₅₀ estimate
GLP: No (Pre-GLP)
Year: 1983
Species/strain: Male CRL:CD® Rats
Route of exposure: Inhalation
Dose levels: 1.5, 1.6, 2.4, 2.6 and 3.1 mg/l
Remarks:

Results

Value: LC₅₀ = >3.1 mg/L
Deaths at each dose:
Remarks: All rats survived, Groups of 6 rats were used at each dose up to 3.1 mg/L. Other than transient weight losses there were no significant clinical signs of toxicity observed.

Conclusions

Material would be considered as not toxic.

Data Quality

Reliability: Reliable with restrictions
Remarks: The study is well documented and followed accepted protocols.

References

Haskell Laboratory, Medical Research Report Number 746-82, Project, No., MR-4368-001,

Other

Repeated Dose Toxicity Test**Substance**

Test substance: Quino(2,3-b)acridine-7,14-dione,5,12-dihydro
Remarks:

Method

Method: Repeated subchronic dose
Test type:
GLP: NA
Year: 1982
Species/strain: Fisher 344 Rats
Route of exposure: Gavage
Duration of test: 33 days
Exposure levels: Rats 0. 1.0%, 5.0 %,10.0% in the diet

Sex:

Exposure period: 33 days
Post-exposure
Observation period:
Remarks:

Results

NOAEL (NOEL): Up to 10 % of the diet
After repeated oral administration for 33 days in rats, pigment Violet 19 showed no signs of toxicity. None of the study animals died on test. Clinically, high dose (10%) animals demonstrated significant body weight gain compared to controls, which appeared to be associated with corresponding increase in food intake. It appeared that these animals tried to compensate by overeating for the decrease in nutritional intake in the 10% pigment diet. These animals, and to a lesser extent the 5% and 1% dose level animals, also had purple tinged fur, apparently as a result from coming in contact with the color pigment in feed hoppers. No other clinical sign were seen in the animals. Clinical pathology, ophthalmology, cytogenetic analysis, organ weights, and gross and tissue morphology examinations failed to detect the toxicity associated with Pigment Violet 19. (A very slight but statistically significant increase in methemoglobin levels was seen for the high dose female rats at week 2, but in neither sex at week 4. Not considered related to Pigment Violet 19 treatment.) In general, under the conditions of the study, toxicity was not observed following the administration of up to 10% Pigment Violet 19 in the diet of Fisher 344 rats for 33 days.

Conclusions

Test substance is not toxic

Data Quality

Reliability: Reliable without restriction
Remarks:

References:

Microbiological Associates, September, 1988 Study for CTFA,
CTFA 86-MAI-A; MAG1003-T03022, Subchronic Oral Toxicity In Rats.

Other

Repeated Dose Toxicity Test**Substance**

Test substance: Quino(2,3-b)acridine-7,14-dione,5,12-dihydro
Remarks:

Method

Method: Absorption/ Distribution/Excretion
Test type:
GLP: NA
Year: 1991
Species/strain: Fisher 344 Rats
Route of exposure: Gavage
Duration of test: 72 Hours
Exposure levels: 3.22 mg/kg and 33.68 uCi/kg Males, 5.44mg/kg 56.81 uCi/kg Females

Sex:

Exposure period: single dose
Post-exposure 72 hour follow up
Observation period:
Remarks:

Results

NOAEL (NOEL): N/A
The test article was administered as a suspension in aqueous 1% carboxymethyl cellulose at a concentration of .3905 mg QV19 and the same amount was administered to each rat Urine and feces were collected from each rat at 2,8,24,48 and 72 hours after dosing; cage washes and gastrointestinal tract of each rat were removed after euthanasia at 72 hour post-dose. Recovery of administered radioactive dose was virtually complete.91.9+ or - 6.9 % of dose males; 100.5+ or _8.7% of dose females. There were no gender related differences in the route of excretion. More than 90 % of the recovered radioactivity was eliminated in the feces and cage washes, which appeared to contain residual fecal matter. At 72 hours virtually all radioactivity had been eliminated by the rats. The urine from both groups of rats contained very low amounts of radioactivity.0089% of dose males;.0020% of dose females.

Conclusions

Radioactivity from a single oral dose of Pigment Violet 19 given to male and female rats was eliminated almost completely in the feces.

Data Quality

Reliability: Reliable without restriction
Remarks:

References:

Bio-Research 1991, Study done for CTFA,

Other

**Repeated Dose Toxicity Test
Substance**

Test substance: Quino(2,3-b)acridine-7,14-dione,5,12-dihydro
Remarks:

Method

Method: Whole Body Radiography
Test type:
GLP: NA
Year: 1991
Species/strain: Fisher 344 Rats
Route of exposure: Gavage
Duration of test: 48 Hours
Exposure levels: ??

Sex:

Exposure period: single dose
Post-exposure 48 hour follow up
Observation period:
Remarks:

Results

NOAEL (NOEL): N/A
Groups of male and female Fisher 344 rats were administered orally by gavage pigment violet 19 and radioactive trace material. And the tissue distribution of radioactivity determined by whole body autoradiography at selected times up to 48 hours after dosing. The autoradiogram showed that radioactivity was localized only in the gastrointestinal tract of both male and female rats. No radioactivity was detected in other organs and tissues of the animals. The highest concentrations of radioactivity were found at 2 hours post dosing . Most of the radioactivity was eliminated from the rats at 24 hours and it was virtually undetected at 18 hours post-dose.

Conclusions

Whole body autoradiography indicated that virtually no radioactivity was detected in tissues, supporting the previous finding that, radioactivity from a single oral dose of Pigment Violet 19 given to male and female rats was eliminated almost completely in the feces.

Data Quality

Reliability: Reliable without restriction
Remarks:

References:

Bio-Research 1991, Study done for CTFA,

Other

C. Genetic Toxicity - Mutation

Test Substance

Test substances: Quino(2,3-b)acridine-7,14-dione,5,12-dihydro

Remarks:

Method

Method: In Vitro Mutagenicity\
Test type: Ames
GLP: ??
Year: 1975
Species/strain: Salmonella typhimurium
Metabolic activation: Yes,
Concentration tested: 100 ug per plate
Remarks:

Results

Result: Negative
Cytotoxic
concentration:
Precipitation
concentration:
Genotoxic effects
With activation: Negative
Without activation: Negative
Statistical methods:
Remarks:

Conclusions

Data Quality

Reliability: Reliable without restrictions
Remarks: Six crystal forms of Violet 19 were tested, No mutagenic response was seen with any of the pigments tested.

References

Salmonella/ Mammalian- microsome plats incorporation mutagenicity/Haskell
Laboratory Report No. 558-75, See also CTFA Report, Quinacridone Violet
19

C. Genetic Toxicity - Mutation

Test substance: Quino(2,3-b)acridine-7,14-dione,5,12-dihydro-2,9-dimethyl
Remarks:

Method

Method: OECD 471
Test type: Ames
GLP: ??
Year: 2000
Species/strain: Salmonella typhimurium
Metabolic activation: With and without
Concentration tested: ??5000 ug/plate with and without activation
Remarks:

Results

Result: Negative in all bacterial strains with and without activation
Cytotoxic concentration:
Precipitation concentration:
Genotoxic effects
 With activation: Negative
 Without activation: Negative
Statistical methods:
Remarks:

Conclusions**Data Quality**

Reliability: Reliable without restriction Remarks:

References

Notox Project No. 289845

Other

D. Genetic Toxicity – Chromosomal Aberrations

Test Substance

Test substance: Quino(2,3-b)acridine-7,14-dione,5,12-dihydro

Remarks:

Method

Method: OECD 473??
Test type: Cytogenetics Assay
GLP: ??
Year: 2001??
Species/strain: Mouse Lymphoma L5178Y Cells
Exposure period:
Remarks:

Results

Result: Negative
Genotoxic effects: Negative
Concentration tested: ?????ug/plate
Statistical methods:
Remarks:

Conclusions

Not mutagenic

Data Quality

Reliability: Reliable without restriction
Remarks:

References

CTFA Micronucleus in vivo and mouse lymphoma cell mutation
underway January, 2000

Other

E. Developmental Toxicity

Test Substance

Test substance:

Remarks:

See subchronic toxicity and absorption studies above.

Method

Method:

GLP:

Year:

Species/strain:

Sex:

Route of exposure:

Exposure levels:

Actual doses received:

Exposure period:

Duration of test:

Remarks:

Results

Maternal toxicity

NOEL:

NOEL for

teratogenicity:

NOEL for fetotoxicity:

Parental toxic

responses:

Fetal toxic responses

dose:

Statistical Methods:

Remarks:

Since available radiographic studies establish consistently no significant uptake or absorption from this substance, no further reproduction or developmental studies are planned.

Conclusions

Data Quality

Reliability:

Remarks:

References

Other

F. Toxicity to Reproduction

Test Substance

Test substance:

Remarks:

Method

Method:

GLP:

Year:

Species/strain:Sex:

Route of exposure:

Exposure levels:

Exposure period:

Duration of test:

Remarks:

Results

Maternal toxicity NOEL:

Parental toxic responses:

Fetal toxic responses dose:

Statistical Methods:

Remarks:

Conclusions

Data Quality

Reliability:

Remarks:

References

Other

Acute toxicity

Test substance: (1) Quino(2,3-b)acridine-7,14-dione,5,12-dihydro and (2) Quino(2,3-b)acridine-7,14-dione,5,12-dihydro-2,9-dimethyl

Remarks:

Method

Method: Skin irritation to the rabbit
Test type: Skin irritation
GLP: unknown
Year: (1)1992 (2) 1982
Species/strain: rabbitt
Route of exposure:
Dose levels:
Remarks:

Results

Value: negative
Deaths at each dose:
Remarks:

Conclusions**Data Quality**

Reliability: unassignable
Remarks:

References

(1) Dupont Haskell Report HLO 584-82
(2) MB Research Labs Project No. MB 92-1750CD

Other

\\Sbs2003\users\KatieSherman\Test Plans\CIPigment Violet 19 Red122 Dihydro Quin 05 23 06.rtf